CLAIMS

1. A frequency dividing circuit comprising:

a first frequency divider for dividing output of a local oscillator and outputting a first in-phase local oscillation signal and a first quadrature local oscillation signal;

a second frequency divider being connected to the first in-phase local oscillation signal output for dividing the first in-phase local oscillation signal and outputting a second in-phase local oscillation signal and a second quadrature local oscillation signal; and

phase correction means for keeping the phase difference between the first in-phase local oscillation signal and the first quadrature local oscillation signal at 90 degrees.

2. A frequency dividing circuit comprising:

a first frequency divider for dividing output of a local oscillator and outputting a first in-phase local oscillation signal and a first quadrature local oscillation signal;

a second frequency divider being connected to the first quadrature local oscillation signal output for dividing the first quadrature local oscillation signal and outputting a second in-phase local oscillation signal and a second quadrature local oscillation signal; and

phase correction means for keeping the phase difference

between the first in-phase local oscillation signal and the first quadrature local oscillation signal at 90 degrees.

3. The frequency dividing circuit according to claim 1, wherein the phase correction means includes a dummy circuit being connected to the first quadrature local oscillation signal output and having input impedance equal to that of the second frequency divider.

4. The frequency dividing circuit according to claim 2, wherein the phase correction means includes a dummy circuit being connected to the first in-phase local oscillation signal output and having input impedance equal to that of the second frequency divider.

5. The frequency dividing circuit according to claim 3 or 4, wherein the dummy circuit is a circuit including a resistor and a capacitor.

6. The frequency dividing circuit according to claim 3 or 4, wherein the dummy circuit is the same amplifier as an input amplifier of the second frequency divider.

7. The frequency dividing circuit according to claim 3 or 4, wherein the dummy circuit is the same circuit as a part of

an input amplifier of the second frequency divider.

8. The frequency dividing circuit according to claim 6, further comprising a control section for controlling the current of the input amplifier and the dummy circuit.

9. The frequency dividing circuit according to claim 1 or 2, wherein the phase correction means includes a control section for controlling the current of an in-phase output amplifier of the first frequency divider and a quadrature output amplifier of the first frequency divider.

10. The frequency dividing circuit according to claim 1, wherein the phase correction means includes a control section for controlling the current of a dummy circuit connected to the first quadrature local oscillation signal output, an in-phase output amplifier of the first frequency divider, and a quadrature output amplifier of the first frequency divider.

11. The frequency dividing circuit according to claim 2, wherein the phase correction means includes a control section for controlling the current of a dummy circuit connected to the first in-phase local oscillation signal output, an in-phase output amplifier of the first frequency divider, and a quadrature output amplifier of the first frequency divider.

12. The frequency dividing circuit according to claim 10 or 11, wherein the dummy circuit is a circuit including a resistor and a capacitor.

13. The frequency dividing circuit according to claim 10 or 11, wherein the dummy circuit has the same circuit configuration as an input amplifier of the second frequency divider.

14. The frequency dividing circuit according to claim 10 or 11, wherein the dummy circuit has the same circuit configuration as a part of an input amplifier of the second frequency divider.

15. The frequency dividing circuit according to claim 13, further comprising a control section for controlling the current of the input amplifier and the dummy circuit.

16. A multimode radio comprising a frequency dividing circuit according to any of claims 1 to 15.

17. The multimode radio according to claim 16, further comprising:

a local oscillator for outputting a local oscillation

signal to the first frequency divider;

a first quadrature modulator to which the first in-phase local oscillation signal and the first quadrature local oscillation signal are input, the first quadrature modulator for performing quadrature modulation of an in-phase baseband transmission signal and a quadrature baseband transmission signal and outputting a first transmission signal having a first frequency; and

a second quadrature modulator to which the second in-phase local oscillation signal and the second quadrature local oscillation signal are input, the second quadrature modulator for performing quadrature modulation of the in-phase baseband transmission signal and the quadrature baseband transmission signal and outputting a second transmission signal having a second frequency.

18. The multimode radio according to claim 17, further comprising a control section being connected to the second frequency divider, the first quadrature modulator, and the second quadrature modulator for switching a mode between a mode of transmitting the first transmission signal and a mode of transmitting the second transmission signal.

19. The multimode radio according to claim 16, further comprising:

a local oscillator for outputting a local oscillation signal to the first frequency divider;

a first quadrature demodulator to which the first in-phase local oscillation signal and the first quadrature local oscillation signal are input, the first quadrature demodulator for performing quadrature demodulation of a first reception signal having a first frequency and outputting an in-phase baseband reception signal and a quadrature baseband reception signal; and

a second quadrature demodulator to which the second in-phase local oscillation signal and the second quadrature local oscillation signal are input, the second quadrature demodulator for performing quadrature demodulation of a second reception signal having a second frequency and outputting the in-phase baseband reception signal and the quadrature baseband reception signal.

20. The multimode radio according to claim 19, further comprising a control section being connected to the second frequency divider, the first quadrature demodulator, and the second quadrature demodulator for switching a mode between a mode of receiving the first reception signal and a mode of receiving the second reception signal.

21. The multimode radio according to claim 16, further

comprising:

a local oscillator for outputting a local oscillation signal to the first frequency divider;

a first quadrature modulator to which the first in-phase local oscillation signal and the first quadrature local oscillation signal are input, the first quadrature modulator for performing quadrature modulation of an in-phase baseband transmission signal and a quadrature baseband transmission signal and outputting a first transmission signal having a first frequency;

a second quadrature modulator to which the second in-phase local oscillation signal and the second quadrature local oscillation signal are input, the second quadrature modulator for performing quadrature modulation of the in-phase baseband transmission signal and the quadrature baseband transmission signal and outputting a second transmission signal having a second frequency;

a first quadrature demodulator to which the first in-phase local oscillation signal and the first quadrature local oscillation signal are input, the first quadrature demodulator for performing quadrature demodulation of a first reception signal having the first frequency and outputting an in-phase baseband reception signal and a quadrature baseband reception signal; and

a second quadrature demodulator to which the second

in-phase local oscillation signal and the second quadrature local oscillation signal are input, the second quadrature demodulator for performing quadrature demodulation of a second reception signal having the second frequency and outputting the in-phase baseband reception signal and the quadrature baseband reception signal.

22. The multimode radio according to claim 21, further comprising a control section being connected to the second frequency divider, the first quadrature modulator, the second quadrature modulator, the first quadrature demodulator, and the second quadrature demodulator for switching a mode between a mode of transmitting the first transmission signal and receiving the first reception signal and a mode of transmitting the second transmission signal and receiving the second reception signal.